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APPLICATION NO. FILING DATE		FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.	
09/842,047	04/26/2001	Yasuo Fukuda	Q64291	6518	
. 75	90 01/07/2004	EXAMINER			
SUGHRUE, M		PHAN, THIEM D			
MACPEAK & S 2100 PENNSYI	SEAS, PLLC LVANIA AVENUE, N.W.	ART UNIT	PAPER NUMBER		
WASHINGTON, DC 20037-3213			3729	7729	
			DATE MAILED: 01/07/2004	,	

Please find below and/or attached an Office communication concerning this application or proceeding.

Offic Action Summary Examiner Tim Phan 3729 Period for Reply A SHORTENEO STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION. Betracines from may be variable under the provision of 37CR 1.13(a). In no event, however, may a reply be timely filled of the SK (6) MONTH (SO) FROM THE MAILING DATE OF THIS COMMUNICATION. Extensives from may be variable under the provisional of 37CR 1.13(a). In no event, however, may a reply be timely filled of the SK (6) MONTH (SO) from the malling date of this communication. Falsable to reply value the act or extended period for reply will be the disturbed violentum of litely (00) days will be conscious filling). If NO period for may be seriod into who, the maximum district period value page (38CM 00/HS) from the malling date of this communication. Falsable to reply value the act or extended period for reply will by addition, cause the application, even it timely fined, may reduce any common deviation and split and the communication, even it timely fined, may reduce any common deviation and split the malling date of this communication. Falsable to reply value the act or extended period for reply will by addition to become ASMICONED (80 U.S.C § 133). Status Responsive to communication(s) filed on 21 October 2003. 2a) This action is FINAL. 2D/Q This action is non-final. 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213. Disposition of Claims 4) Claim(s)			`		Application No	o	Applicant(s)	0		
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The MAILING DATE of this communication appears on the cover sheet with th correspondenc address — Period for Reply A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION. Edectains for item reply a evaluation of 30 CFR 1.136(a). In or event, however, may a reply be timply filed after 40x (6) MCMT/TS item the mailing date of this communication of 30 CFR 1.136(a). In or event, however, may a reply be timply filed after 40x (6) MCMT/TS item the mailing date of this communication. I NO period for reply is specified above, the maximum statutory period villagely and vell agries 12(d) MOVITHS from the mailing date of this communication. Failune to reply within the set or extended period for reply with, by statute, nature the application to become ABANDONED 05 U.S.C. § 113). **Experience of the set of th		Offic	Action Summary		Examiner		Art Unit			
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DETAILED ACTION

Page 2

1. The amendment filed in Paper No. 15 (filed 10/21/03) has been fully considered and made of record.

Claim Rejections - 35 USC § 103

- 2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
 - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
- 3. Claims 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okino et al (US 4,952,272) hereinafter '272.
 - As applied to claim 4, the '272 teaches a method of manufacturing probe pin for testing, comprising:
 - forming an electrode pattern (Cf. Fig. 1, element 2) on a wiring board (Cf. Fig. 1, elements 3 and 1),
 - forming a mask pattern (Cf. Fig. 2a, element 9) with dry film resist or photoresist (Cf. column 4, lines 1-2) on an electrode pattern (Cf. Fig. 2b, element 11),

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• wet etching (Cf. column 3, lines 21-24) the unmasked portion of the electrode pattern to form pointed bump or acute probe pin (Cf. column 3, lines 26-27) then,

• removing of the mask pattern (Cf. Fig. 2c; column 5, lines 38-40).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to control the wet etching's timing of the unmasked portion of the electrode pattern to form a sharp, very sharp or slightly sharp pointed end since it was known in the art that the critical step of the invention is selective wet etching (Cf. column 3 lines 21-28) over dry film resist on electrode pattern to form probe pin and the probe end pin is shaped to be acute (Cf. column 14, line 1) or sharp pointed.

As applied to claims 5 and 7, the '272 teaches the plating process of the probe pin or projection electrode in order to protect it against any corrosion (Cf. column 3, lines 48-53).

As applied to claim 6, the '272 teaches the wet etching process by an etching solution (Cf. column 5, lines 22-24) for undercut or side or around mask etching (Cf. column 5, line 25).

4. Claims 25-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art (AAPA) in view of the '272 and vice versa.

As applied to claims 25, 26 and 29, the AAPA teaches the claimed invention, including the formation of electrode pattern on a wiring board of electronic device (Cf. Specification, page

1, lines 12-13).

The '272 teaches a method of manufacturing probing pin by forming a mask pattern (Cf. Fig. 2a, element 9) with dry film resist or photoresist (Cf. column 4, lines 1-2) on an electrode pattern (Cf. Fig. 2b, element 11) for wet etching (Cf. column 3, lines 21-24) to form pointed bump or acute probe pin (Cf. column 3, lines 26-27) then the mask pattern removal (Cf. Fig. 2c; column 5, lines 38-40).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine AAPA with the '272 and to modify the method of AAPA by applying the mask/wet etching as taught by the '272 with some timing control in order to obtain sharp pointed probe of the projection electrode connected to electronic device.

As applied to claim 27, the '272 teaches the plating process of the probe pin or projection electrode in order to protect it against any corrosion (Cf. column 3, lines 48-53).

As applied to claim 28, the '272 teaches the plated film on the projection electrode or probe pin is formed of gold or rhodium to improve electric contact characteristics (Cf. column 8, lines 2-5).

As applied to claim 30, the '272 teaches the claimed invention except for making the bump electrodes in parallel.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to create the bump electrodes in parallel since it was known in the art that the accurate pinning position of the end bump probes can be highly realized on the head probe (Cf. Abstract).

5. Claim 31-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art (AAPA) in view of the '272 and vice versa.

As applied to claims 31, 32, 34 and 35, the AAPA teaches the claimed invention, including the formation of electrode pattern on a wiring board of electronic device (Cf. Specification, page 1, lines 12-13).

The '272 teaches a method of manufacturing probing pin by forming a mask pattern (Cf. Fig. 2a, element 9) with dry film resist or photoresist (Cf. column 4, lines 1-2) on an electrode pattern (Cf. Fig. 2b, element 11) in a polygon or triangle or star shape (Cf. column 3, line 68) equally spaced (Cf. Fig. 2c, element 11) for wet etching (Cf. column 3, lines 21-24) to form pointed bump or acute probe pin (Cf. column 3, lines 26-27) then the mask pattern removal (Cf. Fig. 2c; column 5, lines 38-40).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine AAPA with the '272 and to modify the method of AAPA by applying the mask/wet etching as taught by the '272 with some timing control in order to obtain sharp pointed probe in polygon, star or pentagon or the like pattern of the projection electrode connected to electronic device.

As applied to claim 33, the '272 teaches that during etching the resist pattern (Cf. Fig. 4d, element 9) remains in contact with electrode pattern (f. Fig. 4d, element 2)

Response to Arguments

6. Applicants' arguments with respect to claims 4-7 and 25-35 have been considered but are most in view of the new ground(s) of rejection.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tim Phan whose telephone number is 703-605-0707. The examiner can normally be reached on Monday - Friday, 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter VO can be reached on 703-308-1789. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1148.

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CARL J. ARBES
PRIMARY EXAMINER

Tim Phan Examiner Art Unit 3729

tp January 5, 2004